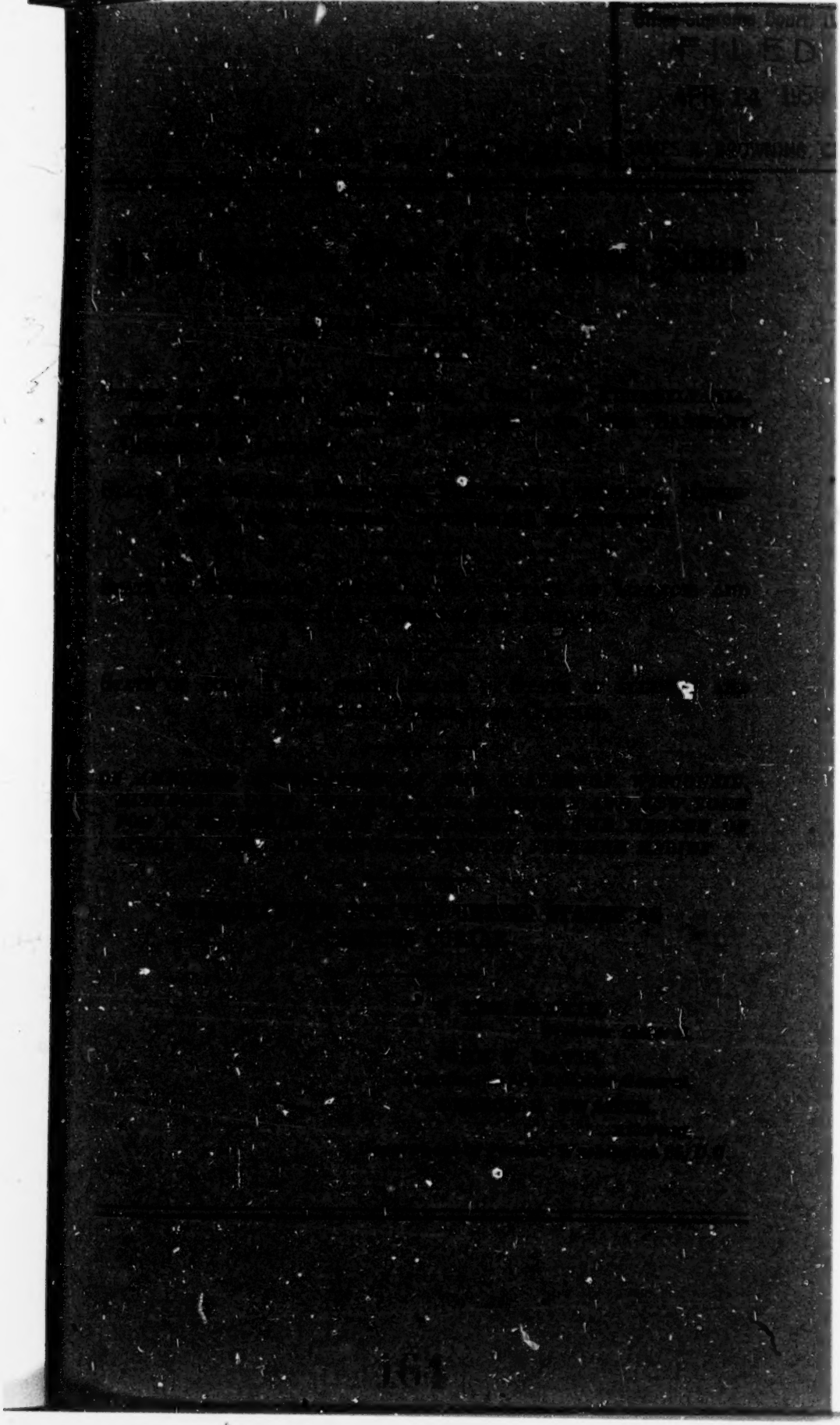

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In the Supreme Court of the United States

OCTOBER TERM, 1958

No. 2, Original

STATES OF WISCONSIN, MINNESOTA, OHIO AND PENNSYLVANIA, COMPLAINANTS *v.* STATE OF ILLINOIS AND THE SANITARY DISTRICT OF CHICAGO

STATES OF MISSOURI, KENTUCKY, TENNESSEE, LOUISIANA, MISSISSIPPI, AND ARKANSAS, INTERVENING DEFENDANTS

No. 3, Original

STATE OF MICHIGAN, COMPLAINANT *v.* STATE OF ILLINOIS AND THE SANITARY DISTRICT OF CHICAGO

No. 4, Original

STATE OF NEW YORK, COMPLAINANT *v.* STATE OF ILLINOIS AND THE SANITARY DISTRICT OF CHICAGO

ON AMENDED APPLICATION OF THE STATES OF WISCONSIN, MINNESOTA, OHIO, PENNSYLVANIA, MICHIGAN AND NEW YORK FOR A REOPENING AND AMENDMENT OF THE DECREE OF APRIL 21, 1930, AND THE GRANTING OF FURTHER RELIEF

MEMORANDUM FOR THE UNITED STATES AS AMICUS CURIAE

POSITION OF THE UNITED STATES

After the complainants filed the present application, the Court invited the Solicitor General to submit the views of the United States on the matter. In or-

der to aid the Court, the Solicitor General has submitted the parties' papers to, and consulted with, the Department of the Army, the Public Health Service, and the Department of State. The first two agencies have submitted their views in writing and their comments are attached as Appendices A and B. The prime interest of the Department of State arises out of the possible effect of the diversion on Canadian interests and the possible involvement of treaty obligations. Although Canada has objected to legislation for increased diversion, it has expressed no views to the State Department with reference to the present application, and therefore the State Department has not felt it appropriate to take any position at this time.

In addition, in order to be fully informed on the facts in the case and the legal position of the parties, the Solicitor General consulted with the attorneys and engineers of both parties and participated in a joint conference where both sides were given full opportunity to develop the issues, both factual and legal. Written inquiries were submitted to each and both have submitted answers and Illinois has provided additional factual material. The views expressed by the Department of the Army and the Public Health Service have been made known to the parties, and the written information submitted by each has been made available to the other. The comments made in this memorandum reflect, in some measure, the information thus obtained, as well as the facts alleged in the formal papers and briefs.

The United States has a direct interest in this litigation. Since navigable waters are involved, the

United States is concerned with protecting and fostering the use of the waterways. The Department of Health, Education, and Welfare, through the Public Health Service, has obligations with respect to promoting sanitary conditions. There is a substantial federal interest in the development of the St. Lawrence Seaway and of hydroelectric power in connection therewith. And the treaty obligations of the United States with Canada are a matter of concern. However, this memorandum is not intended to reflect solely the views of the United States by reason of the federal interests involved, but rather an analysis of the issues from the point of view of the welfare of the people of the United States as a whole. Quite properly, the parties to these proceedings must represent the particular interests of particular segments of the population. It has been our attempt to look at the problems from an over-all viewpoint.

QUESTIONS PRESENTED

1. Whether the Court should reopen and modify its decree of April 21, 1930, so as to require the State of Illinois and the Sanitary District of Chicago to discharge the District's sewage effluent into Lake Michigan rather than into the Sanitary Canal as is done under the present decree.

2. Whether the Court, alternatively, should appoint a Special Master to hold hearings and make recommendations as to such modification of the decree.

3. Whether the Court should take any other action looking toward modifying or supplementing its decree, particularly with respect to meeting future developments.

STATEMENT

Most of the background facts material to the present application appear in the Court's former opinion in this case, *Wisconsin* v. *Illinois,* 278 U.S. 367, 403–407. The Chicago Sanitary and Ship Canal was built by the Sanitary District of Chicago as a means of disposing of the sewage of the Chicago area. It extends from the Chicago River to Lockport, where it discharges into the Des Plaines River in the Mississippi watershed. In addition to water pumped from Lake Michigan for domestic use and discharged into the canal as sewage, the canal carries water drawn directly from the lake through the Chicago River, the natural flow of which is thereby reversed.[1] When the canal was opened in 1900 this direct diversion amounted to 2,541 cubic feet a second. On December 5, 1901, the Secretary of War authorized diversion of 250,000 cubic feet a minute (*i.e.,* 4,167 cubic feet a second), but he steadfastly refused to permit more, except when he authorized diversion of 350,000 cubic feet a minute for ten weeks in 1903 as a means of clearing the canal of accumulated sewage deposits. Nevertheless, the direct diversion increased to 5,751 cubic feet a second in 1909 and to 7,228 c.f.s. in 1916; it was 6,888 c.f.s. in 1926. The United States sued to enjoin this unauthorized diversion, and after protracted litigation secured a judgment which was affirmed by this Court

[1] Sewage and lake water are also brought into the canal by the Calumet-Sag Channel, an artificial waterway opened in 1922. It extends from Sag Junction, a point on the Sanitary Canal 12.4 miles from Lockport, to the Calumet River, the flow of which has been reversed to bring water into the channel from Lake Michigan. H. Doc. No. 180, 73d Cong., 2d Sess. (Cong. Doc. Ser. No. 9832), 18.

in 1925. *Sanitary District of Chicago.* v. *United States,* 266 U.S. 405. However, to prevent excessive pollution of the canal the larger diversion was needed until Chicago established a sewage purification program; accordingly the Secretary of War on March 3, 1925, authorized diversion of 8,500 c.f.s. until December 31, 1929, on condition that a sewage treatment program of specified character be immediately begun.

While the Government's case was pending, Wisconsin on July 14, 1922, began the suit which is now No. 2, Original; on October 5, 1925, an amended complaint was filed in which Minnesota, Ohio and Pennsylvania joined as co-complainants. They sought to enjoin the diversion from Lake Michigan on the ground that it was not authorized by Congress and had lowered the levels of Lakes Michigan, Huron, Erie and Ontario by about six inches, to the damage of the complainant States and in derogation of their rights. Missouri, Kentucky, Tennessee and Louisiana were allowed to intervene as defendants. *Wisconsin* v. *Illinois,* 46 S. Ct. 208. Michigan on March 8, 1926, and New York on October 18, 1926, filed similar complaints against Illinois and the Sanitary District (now Nos. 3 and 4, Original, respectively). The three cases were referred to Charles Evans Hughes as Special Master, *Wisconsin* v. *Illinois,* 271 U.S. 650, 273 U.S. 642, and Arkansas and Mississippi were allowed to intervene as defendants, 273 U.S. 644. While the cases were before the Special Master, the Court ordered the third paragraph of New York's complaint, alleging possible interference with water power development, stricken without prejudice, on

the ground that it showed no present or definitely planned use of power which was being interfered with. *New York* v. *Illinois,* 274 U.S. 488. The report of the Special Master was filed thereafter, on November 23, 1927. *Wisconsin* v. *Illinois,* 72 L. Ed. 1015.

On exceptions to the Report of the Special Master, this Court held that under Section 10 of the Rivers and Harbors Act of March 3, 1899, 30 Stat. 1121, 1151, the Secretary of War had no authority to permit diversion of water from a navigable waterway of the United States except in aid of navigation. The Court found that the temporary and conditional permit to divert 8,500 c.f.s. was justified as being necessary to keep the Chicago River, as part of the Port of Chicago, free from deposits of sewage until improved means of sewage disposal could be provided. It referred the case back to the Special Master to report as to what could and should be done to provide better sewage disposal and to reduce the diversion to such amount, if any, as might be needed for navigational purposes. *Wisconsin* v. *Illinois,* 278 U.S. 367.

The Special Master's report on re-reference was filed on December 17, 1929. After hearing argument on exceptions to the report, the Court concluded that the best means of disposing of Chicago's sewage was to discharge it through the canal at Lockport, that a certain amount of water directly diverted from Lake Michigan was also needed to oxidize and carry off the sewage and prevent the pollution of navigable waters, and that the amount of such direct diversion could be greatly reduced when proper measures for sewage

treatment had been adopted. Requiring rapid completion of the construction program proposed by the Sanitary District, the Court set a schedule for the direct diversion to be reduced to 6,500 c.f.s. by July 1, 1930; to 5,000 c.f.s. by December 31, 1935; and to 1,500 c.f.s. by December 31, 1938. This was to be in addition to the domestic pumpage, but included surface run-off of the Chicago area, which would normally have drained into Lake Michigan. The diversion was to be measured by subtracting the amount of the domestic pumpage from the amount of the total flow at Lockport. The Court ordered the District to file semiannual reports with the Court, reporting construction progress, the extent and effects of operation of the sewage plants, and the amount of water diverted. The Court rejected the complainants' requests that direct diversion from Lake Michigan be entirely stopped and the sewage effluent returned to the lake, saying (281. U.S. 179, 200):

> But purification is not absolute. How nearly perfect it will be with the colossal works that the defendants have started is somewhat a matter of speculation. The master estimates that with efficient operation the proposed treatment should reach an average of 85 per cent purification and probably will be 90 per cent or more. Even so we are somewhat surprised that the complainants should desire the effluent returned. The withdrawal of water for domestic purposes is not assailed by the complainants and we are of opinion that the course recommended by the master is more reasonable than the opposite demand. If the amount with-

> drawn should be excessive, it will be open to complaint. Whether the right for domestic use extends to great industrial plants within the District has not been argued but may be open to consideration at some future time.

The Court retained jurisdiction to modify its decree. *Wisconsin* v. *Illinois,* 281 U.S. 179, 201–202; 281 U.S. 696.

From Lockport, on the Des Plaines River, down to Utica, on the Illinois River, was originally not navigable, but in 1921 the State of Illinois began improvement of that stretch, called the Illinois Waterway,[2] designed to provide the final navigational link between Lake Michigan and the Mississippi River. However, the State funds were not sufficient to complete it, and in the Rivers and Harbors Act of July 3, 1930, 46 Stat. 918, 929, passed a few weeks after the Court's decree, Congress provided for taking over and completing the Illinois Waterway, as follows:

> Illinois River, Illinois, in accordance with the report of the Chief of Engineers, submitted in Senate Document Numbered 126, Seventy-first Congress, second session, and subject to the conditions set forth in his report in said document, but the said project shall be so constructed as to require the smallest flow of water

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[2] "The so-called 'Illinois Waterway' extends from the head of the Lockport Lock to the foot of Starved Rock Lock on the Illinois River, a distance of 60 miles, of which 18 lie in or adjacent to the Des Plaines River, and 42 miles in or adjacent to the Illinois River." H. Doc. No. 184, 73d Cong., 2d Sess. (Cong. Doc. Ser. No. 9832), 17. The Starved Rock Lock is one mile above Utica. S. Doc. No. 126, 71st Cong., 2d Sess. (Cong. Doc. Ser. No. 9220), 42.

with which said project can be practically accomplished, in the development of a commercially useful waterway: *Provided,* That there is hereby authorized to be appropriated for this project a sum not to exceed $7,500,000: *Provided further,* That the water authorized at Lockport, Illinois, by the decree of the Supreme Court of the United States, rendered April 21, 1930, and reported in volume 281, United States Reports, in Cases Numbered 7, 11, and 12, Original—October term, 1929, of Wisconsin and others against Illinois, and others, and Michigan against Illinois and others, and New York against Illinois and others, according to the opinion of the court in the cases reported as Wisconsin against Illinois, in volume 281, United States, page 179, is hereby authorized to be used for the navigation of said waterway: *Provided further,* That as soon as practicable after the Illinois waterway shall have been completed in accordance with this Act, the Secretary of War shall cause a study of the amount of water that will be required as an annual average flow to meet the needs of a commercially useful waterway as defined in said Senate document, and shall, on or before January 31, 1938, report to the Congress the results of such study with his recommendations as to the minimum amount of such flow that will be required annually to meet the needs of such waterway and that will not substantially injure the existing navigation on the Great Lakes to the end that Congress may take such action as it may deem advisable.

The report called for by that Act (commonly called the "Sultan Report" after Lieutenant Colonel Dan I.

Sultan, the Corps of Engineers' District Engineer, its primary author) was submitted to Congress on December 7, 1933. H. Doc. No. 184, 73d Cong., 2d Sess. (Cong. Doc. Ser. No. 9832). On the basis of findings that domestic pumpage would average about 1,700 c.f.s. for some years to come (p. 48) and that the maximum amount of water needed for navigation on the waterway would be about 1,980 or 2,000 c.f.s. (pp. 11–12, 22–24, 48–50), the Board of Engineers for Rivers and Harbors concluded that the diversion of 1,500 c.f.s. allowed by the Court would meet the direct needs of navigation (p. 14), and the Chief of Engineers concurred in that view (pp. 5–6). However, the Chief of Engineers also accepted the recommendation that, after the sewage plants were in operation and the diversion reduced to 1,500 c.f.s., there should be a study to determine whether that was enough diversion to keep the waterway in a proper sanitary condition (pp. 6, 14, 22–24, 51–52).

The direct diversion was reduced in accordance with the Court's schedule, and since 1938 it has not exceeded, on an annual average, 1,500 c.f.s. except for a few temporary increases authorized by the Court or the Corps of Engineers to meet emergency situations.[3] Although the Chicago domestic pumpage had

[3] The annual average rates of diversion are set out in a table in defendants' Brief in Opposition to the Amended Application, p. 6. The Court authorized diversion of 10,000 c.f.s. for ten days, Dec. 2–12, 1940, pursuant to stipulation, to clear accumulated sewage deposits from the canal. 311 U.S. 107. It permitted up to 8,500 c.f.s., in the discretion of the Corps of Engineers, from Dec. 17, 1956, through Feb. 28, 1957, to aid navigation at the Alton Lock on the Mississippi. 352 U.S. 945; 352 U.S. 983. The Chief of Engineers permitted slightly excessive diversion in 1942 (1,528 c.f.s.) and 1944 (1,521 c.f.s.)

increased rather steadily from 449 c.f.s. in 1900 to 1,395 c.f.s. in 1926 (Special Master's Report of November 23, 1927, pages 22–23), it has remained at about 1,700 c.f.s. from 1930 to the present time (defendants' Brief in Opposition to the Amended Application, p. 6), despite steady increases in the area, population, and industry served. This has been accomplished by reduction of waste and leakage; but there is little question that this program has gone about as far as it can, and that it will not be long before increases in the population or industries served must be accompanied by some increase in the domestic pumpage.

Congress has several times considered proposals to increase the diversion temporarily, for the purpose of studying its effect on the waterway. H.R. 3300, 83d Cong., providing for diversion of an additional 1,000 c.f.s. for three years, and study of its effects,[4] was vetoed September 3, 1954, 100 Cong. Rec. 15569. H.R. 3210, 84th Cong., a similar measure,[5] was vetoed August 9, 1956, 102 Cong. Rec. 15304. H.R. 2, 85th Cong., to the same effect, passed the House but was not acted on by the Senate.[6] H.R. 1, 86th Cong., providing for one-year diversion of an additional 1,000 c.f.s. and three-year study of its effects on the Great

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as a war emergency measure in aid of navigation. See. S. Doc. No. 28, 85th Cong., 1st Sess., 12.

[4] H.R. 3300, 83d Cong., is set out in the Senate Public Works Committee Hearings on H.R. 3300, 83d Cong., 2d Sess. (Apr. 20, 1954), p. 1.

[5] H.R. 3210, 84th Cong., is set out in 101 Cong. Rec. 10002.

[6] H.R. 2, 85th Cong., is set out in the Senate Public Works Committee Hearings on H.R. 2 and S. 1123, 85th Cong., 2d Sess. (July 28, 29, Aug. 7, 1958), p. 11.

Lakes, the canal and waterway and the Mississippi River, passed the House on March 13, 1959. 105 Cong. Rec. (daily ed.) 3666–3703.[8a]

Except for the temporary increases in diversion already referred to (*supra*, p. 10), this Court has rejected all applications to modify its decree of 1930. On January 16, 1933, it denied such a motion made by Missouri and the other intervening States. 288 U.S. 587; see 289 U.S. 395, 396, fn. On May 22, 1933, it ruled that nothing in the Rivers and Harbors Act of 1930, 46 Stat. 918, 929, or the then pending treaty for the St. Lawrence Seaway required any change in the decree. 289 U.S. 395. On May 26, 1941, it dismissed a petition by Illinois to modify the decree. 313 U.S. 547. Motions by defendants for clarification of the decree were dismissed on October 23, 1950, 340 U.S. 858, and on December 17, 1956, 352 U.S. 947. On March 3, 1958, complainants' applications to amend the decree were denied, with leave to renew them on the basis of more definite and certain allegations. 355 U.S. 944. It is on such an amended application by the complainants that the matter is now before the Court.

The amended application, like its predecessors last Term, asks that the decree be reopened and amended so as to require the defendants to discharge the effluent of their sewage treatment plants into Lake Michigan rather than into the Mississippi River Basin

[8a] Canada has objected to the increased diversion proposed by the bills in the 83d, 84th, and 86th Congresses on the ground that it would impair navigation and hydro-electric development. While not specifically objecting to the bill before the 85th Congress, Canada did reserve its rights under the Boundary Waters Treaty of 1909.

through the canal at Lockport, as is now done. They do not challenge the direct diversion of 1,500 c.f.s. needed for navigation on the Illinois Waterway. Alternatively to the direct granting of the relief requested, the complainants ask that a Special Master be appointed to hold hearings and make recommendations to the Court on the matter. The reason for the application is to secure a greater depth of navigable water in the Great Lakes, particularly in their harbors and connecting channels, and, in the case of New York, to secure a greater flow of water for power purposes.

DISCUSSION

I. THE COMPLAINANTS HAVE NOT SHOWN GROUNDS FOR MODIFYING THE DECREE SO AS TO REQUIRE CHICAGO'S SEWAGE EFFLUENT TO BE RETURNED TO LAKE MICHIGAN

1. THE NATURE OF THE PROCEEDING

This application does not bring before the Court a matter to be considered *de novo*. It is an application to reopen and amend the decree entered on April 21, 1930, under which the parties have been operating, with a few temporary emergency modifications, since that time. The Court's power to make such amendment is of course unquestionable, both because such jurisdiction was retained expressly by the terms of the decree and because it would exist independently of such expression in any event. *United States* v. *Swift & Co.*, 286 U.S. 106, 114. Nevertheless, the scope of the proceeding is more limited than if it were an original application. As the Court said in the *Swift* case (286 U.S. at 119),

> There is need to keep in mind steadily the limits of inquiry proper to the case before us.

> We are not framing a decree. We are asking ourselves whether anything has happened that will justify us now in changing a decree. The injunction, whether right or wrong, is not subject to impeachment in its application to the conditions that existed at its making. We are not at liberty to reverse under the guise of readjusting. Life is never static * * *. The inquiry for us is whether the changes are so important that dangers, once substantial, have become attenuated to a shadow.

The United States believes that the complainants have not thus far shown any such substantial changes in circumstances as to require or justify the modification of the decree which they request. Indeed, except as to the question of water power at the Niagara and the St. Lawrence Rivers, discussed *infra*, pp. 19–23, they do not show that circumstances have changed in any way at all.

2. RATE OF DOMESTIC PUMPAGE

The complainants set out (Amended Application, p. 8) figures showing that the total diversion (direct diversion plus domestic pumpage) was greater in 1954 than in 1939, and was still greater in 1956; but an examination of the more complete table in the defendants' Brief in Opposition to the Amended Application, p. 6, shows that this increase was not fairly representative of a trend, but resulted largely from annual fluctuations, plus the unusual diversion which the Court allowed for navigational reasons in 1956. The domestic pumpage was 1700 c.f.s. in 1930 and 1760 c.f.s. in 1958—certainly not an excessive increase

for 28 years of population and industrial growth.' The complainants' allegation (Amended Application, p. 8) that the domestic pumpage is excessive, does not meet their burden of showing, even *prima facie*, that it has materially changed since the decree was entered in 1930.

3. CHANGES IN LAKE LEVELS

Again, while the complainants allege (Amended Application, p. 11) that diversion of the domestic pumpage has lowered Lakes Michigan and Huron by nearly two inches and Erie and Ontario by one inch from their natural levels, they make no showing that this is a changed or unforeseen circumstance. It is, on the contrary, merely a residual fraction of the much greater lowering caused by the larger diversion which existed prior to the decree. It is part of the situation that actually existed in 1930, and offers in itself no ground for modifying the decree. In his report of November 23, 1927, the Special Master found (pp. 104–105) that each 1,500 c.f.s. of diversion caused a lowering of about one inch in Lake Michigan. The Corps of Engineers now estimates that an increase of only 1,000 c.f.s. in the present diversion would lower Lake Michigan one inch. S. Doc. No. 28, 85th Cong., 1st Sess., 26. This re-evaluation apparently indicates that the 1930 decree, decreasing the diversion by 7,000 c.f.s., from 8,500 to 1,500 c.f.s., raised the level of Lake Michigan by seven inches instead of by only 4⅔ as the Special Master would have expected. This departure from the expectation

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[7] That represents an increase of about 3½% in the domestic pumpage, while the population, according to the figures given in the Amended Application, pp. 4–5, has increased about 18%.

of 1930 has of course been favorable to the complainants, and affords no ground for the modification of the decree which they seek.

4. INJURIES TO NAVIGATION

The Amended Application alleges (pp. 11–14) that the lowering of lake levels by the Chicago diversion injures navigation by reducing the loading limits of the larger vessels, necessitates additional dredging in harbors and channels, obstructs unimproved inlets used by small craft, and impairs the value of terminal facilities. It also alleges damage of a non-navigational character to riparian properties. While some losses of the sorts mentioned undoubtedly result from the lowering of the lake levels, we believe that they are substantially overstated by the complainants. For example, the Amended Application (p. 12) states the annual loss of cargo capacity at more than 2,500,000 tons, or more than $4,000,000 in revenue. The Corps of Engineers, however, estimates the annual loss to American shipping at something under 600,000 tons, with about $660,000 value.[8] In any event, it does not appear that losses of this character were unforseen in 1930, or that their amount has so exceeded what was then expected as to require revision of the decree.[9]

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[8] Memorandum of February 12, 1959, prepared by the Chief of Engineers and submitted to the Solicitor General by letter of February 27, 1959, from the Secretary of the Army. Appendix A, *infra*, pp. 39, 40–42.

[9] The allegation (Amended Application, p. 13) of reduction in the value of terminal facilities is hard to understand, unless it refers to potential values never yet realized, or to facilities built before 1901. Diversion at Chicago has been continuous since 1900; since 1901 it has been considerably greater than at

5. ADEQUACY OF SEWAGE TREATMENT

The Amended Application alleges (pp. 5–7) serious deficiencies in the Sanitary District's collection and handling of its sewage, so that its treatment plant effluent and sewage overflow cause pollution in the Sanitary Canal. Any such conditions should of course be corrected so far as possible; but it does not appear that the present complainants are in any way injured by them. Moreover, if such deficiencies do exist, they would seem to provide the strongest reason for keeping the Sanitary District's effluent and overflow sewage out of Lake Michigan, the source of Chicago's domestic water supply, rather than discharging it therein as complainants seek.

In the Government's view, the relevancy of sewage treatment to the present question is that, if treatment techniques have so improved since 1930 that a substantially higher degree of purification can be achieved now than was possible then, the improvement might properly incline the Court to re-examine its decision not to require the Sanitary District to return its effluent to Lake Michigan. But it seems that no such improvement in the science of sewage treatment has yet occurred. In 1930 the Court said, "The master estimates that with efficient operation the proposed treatment should reach an average of 85 per cent purification and probably will be 90 per cent or more." *Wisconsin* v. *Illinois*, 281 U.S. 179, 200. The Public Health Service advises us that in a large-scale operation, such as that at Chicago, an over-all average of

present in most years, and never very substantially less. See S. Doc. No. 28, 85th Cong., 1st Sess., p. 58, and defendants' Brief in Opposition to the Amended Application, p. 6.

from 90% to 95% purification is about the best that can be achieved by modern methods, and the complainants do not question that conclusion. In response to a question put to them by the Solicitor General, the complainants have stated that at present "The activated sludge process type of treatment when properly protected and employed can produce operating efficiencies in the range of 90% to 95%" removal of biochemical oxygen demand (one of the basic measures of purification). Between the Special Master's "probable 90% or more" of 1930 and the complainants' "range of 90% to 95%" of today we find no change "so important that dangers,[10] once substantial, have become attenuated to a shadow." *United States* v. *Swift & Co.*, 286 U.S. 106, 119.

6. ANTICIPATED INCREASES IN PUMPAGE

The complainants allege (Amended Application, pp. 5, 9) that there will be substantial future increases in the population of the Chicago area, and consequently in the amount of water drawn from Lake Michigan for domestic and other uses. Such increases appear virtually inevitable, although their extent is of course uncertain, but they can hardly be considered a development that was unforeseen in 1930. Since any substantial increase in the domestic pumpage remains now, as it was then, a mere matter of expectation, it appears to give no ground for immediate entry of an order modifying the decree so as to require the sewage plant effluent to be returned to Lake Michigan.

[10] I.e., the danger that effluent in Lake Michigan would pollute Chicago's water supply.

7. POWER LOSSES

Finally, there are the allegations (Amended Application, pp. 14–15) that the diversion of Chicago's domestic pumpage reduces the amount of water available to the Power Authority of the State of New York for power purposes at the Niagara and St. Lawrence Rivers. These are a reassertion of the claim which was dismissed without prejudice in *New York* v. *Illinois,* 274 U.S. 488, New York having in the meantime overcome, by actual or scheduled construction, the objection which led to that dismissal, *i.e.,* that no present or planned power development was yet being interfered with. We do not question that the Chicago diversion now withholds water which the Power Authority of the State of New York has or will soon have facilities for using, although the Corps of Engineers is unable to confirm the allegations as to the resulting monetary loss in capacity value.[11] We do not question that the complainants have standing to raise the issue. The value in the flow of a navigable river is a value that inheres in the navigation servitude of the Federal Government, and which the Government can grant or withhold as it chooses. *United States* v. *Twin City Power Co.,* 350 U.S. 222, 225. The plenary power of Congress over navigable waters empowers it to deny the privilege of obstructing them, or to impose terms on a grant of the privelege. *United States* v. *Appalachian Electric Power Co.,* 311 U.S. 377, 427. Unless the State of New York or its Power Authority has a federal permit to use for power pur-

[11] See Appendix A, *infra,* pp. 43–44. The Corps of Engineers considers the estimate of energy loss to be reasonable.

poses the water which is now being diverted at Chicago, the diversion of that water invades no right of New York and so provides no ground for relief to that State. New York has not shown that it or its instrumentality has such a permit, and we think that it cannot do so.

The International Boundary Waters Treaty of January 11, 1909, 36 Stat. 2448, between the United States and Great Britain, provided (Art. V, 36 Stat. 2450) that the United States could authorize diversion, for power purposes, of up to 20,000 c.f.s. of water of the Niagara River above the Falls; and (Art. VIII, 36 Stat. 2451) that power use of other boundary waters should be approved by an International Joint Commission, established by the treaty. The Niagara River Water Diversion Treaty with Canada, February 27, 1950, 1 U.S.T. 694, substituted new provisions as to the Niagara River: that stated quantities of water should be allowed to go over the Falls, and that each Government could license power use of half of the total remaining outflow of Lake Erie (excepting water used for domestic and sanitary purposes and for the service of canals for navigation, and certain water brought into the drainage basin by Canada and reserved to Canadian power use under a prior arrangement).

By the Act of August 21, 1957, 71 Stat. 401, Congress directed the Federal Power Commission to license the Power Authority of the State of New York to use all of the water of the Niagara River available to the United States for power purposes. There was thus authorized for the Power Authority

one half of the outflow of Lake Erie, in excess of the water reserved for the falls and certain other exceptions. Water diverted at Chicago is not part of the outflow of Lake Erie; and since the Chicago diversion received federal approval long before the Act of August 21, 1957, the Power Authority's license to use a certain part of the outflow of Lake Erie cannot be understood as nullifying the prior federal license under which certain water never became part of that outflow. The Chicago diversion of 1,500 c.f.s. plus domestic pumpage was authorized by this Court's decree of April 21, 1930, *Wisconsin* v. *Illinois*, 281 U.S. 696. On June 26, 1930, the Secretary of War authorized diversion of the amount of water specified in the decree,[12] and by the Rivers and Harbors Act of July 3, 1930, 46 Stat. 918, 929 (*supra*, pp. 8–9), Congress provided that the water authorized at Lockport by the decree should be used for navigation of the Illinois Waterway. Existing federal authority for the present Chicago diversion is thus plain. While there is no doubt that that authority can be withdrawn, and that if it is, the position of the Power Authority of the State of New York will be improved, that does not give the Power Authority any basis for seeking its withdrawal. Having been licensed only as to a residuum, the Power Authority must accept that residuum as it finds it.

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[12] The permit issued by the Secretary of War is set out in the Motion for Leave to File and Brief of the Chicago Association of Commerce and Industry as *Amicus Curiae* in Opposition to the Amended Application, pp. 28–30.

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The case is equally clear as to the Power Authority's rights relating to the International Rapids[13] section of the St. Lawrence River. Under the 1909 treaty, the International Joint Commission gave the United States permission for that project, to be carried out by an agency to be named by the United States. The approval was originally given on October 29, 1952, and is set out in the St. Lawrence Seaway Manual, S. Doc. No. 165, 83d Cong., 2d Sess. (Cong. Doc. Ser. No. 11760), 137–143, and in 27 State Dept. Bull. 1019–1024 (Dec. 29, 1952). On July 15, 1953, the Federal Power Commission licensed the Power Authority of the State of New York to construct and operate the project. St. Lawrence Seaway Manual, *supra,* 150–156. On November 4, 1953, the President, by Executive Order No. 10500, designated the Power Authority of the State of New York as the agency to construct the project under the approval given by the International Joint Commission. 18 Fed. Reg. 7005 (Nov. 6, 1953); St. Lawrence Seaway Manual, *supra,* 156–158.

On July 2, 1956, the approval given by the International Joint Commission was amended. 35 State Dept. Bull. 227–229 (Aug. 6, 1956). That amendment provides, among other things:

> * * * The regulated outflow from Lake Ontario from 1 April to 15 December shall be such as not to reduce the minimum level of Montreal Harbour below that which would have occurred

[13] The International Rapids section of the St. Lawrence River extends from Chimney Point, N.Y., to St. Regis, N.Y., a distance of about 48 miles. See St. Lawrence Seaway Manual 120, and plate 2 facing page 16.

> in the past with the supplies to Lake Ontario since 1860 adjusted to a condition assuming a continuous diversion out of the Great Lakes Basin of 3,100 cubic feet per second at Chicago and a continuous diversion into the Great Lakes Basin of 5,000 cubic feet per second from the Albany River Basin (hereinafter called the "supplies of the past as adjusted"). [35 State Dept. Bull. 229.]

This makes it clear that water levels as reduced by the diversion of 3,100 c.f.s. at Chicago were taken as normal for purposes of the project, emphasizing, if emphasis be needed, that here as at Niagara the permit is to be understood as applying only to such water as remains after the previously authorized diversion.

We conclude that the Amended Application does not show facts which would justify modification of the 1930 decree at this time to require the defendants to return the Sanitary District's sewage plant effluent to Lake Michigan.

8. EFFECT OF THE RIVERS AND HARBORS ACT OF JULY 3, 1930

While we thus agree with the defendants, that a basis for modification in the way sought has not been presented, we do not agree with their further position that Congress, in the Rivers and Harbors Act of July 3, 1930, authorized the present diversion so as to prevent the Court from forbidding it now. That Act provided (*supra,* p. 9) that "the water authorized at Lockport, Illinois, by the decree of the Supreme Court of the United States, rendered April 21, 1930 * * * is hereby authorized to be used for the navigation of said [Illinois] waterway * * *."

Since in its decree the Court expressly retained a power of modification, this raises the question of whether Congress intended to authorize the amount of water provided by the decree as originally entered, or the amount of water that might be provided by the decree as modified from time to time. The defendants (Brief in Opposition to the Amended Application, pp. 27–29) and the Chicago Association of Commerce and Industry in its tendered *amicus curiae* brief contend that Congress adopted the fixed amount of the original decree. Our examination of the legislative history of the Act persuades us that Congress intended to refer to such amount as was permitted by the decree as it might be modified from time to time.

As originally introduced, the bill (H.R. 11781, 71st Cong., 2d Sess.) did not contain the quoted language; it was added by a floor amendment introduced by Senator Blaine of Wisconsin (72 Cong. Rec. 10640) although he was not the author of it (72 Cong. Rec. 11003). Senator Vandenberg of Michigan made the initial presentation of the amendment to the Senate (72 Cong. Rec. 10996–11002), emphasizing the adequacy of the flow provided by the Court's decree (72 Cong. Rec. 10998). When Senator McCulloch of Ohio asked if the decree were not subject to modification, Senator Vandenberg agreed:

> The Senator, of course, is entirely correct. * * * I believe that Illinois and Chicago can go back to that court—we, the complaining States—can go back to that court, and on a good-faith showing of legitimate facts, I have

no doubt in my mind whatever that ample relief either way will be cheerfully granted. [72 Cong. Rec. 11000.]

Senator Glenn of Illinois then took up the questioning:

In connection with the interrogatory propounded by the Senator from Ohio, is it not likewise true that the flow of 1,000 or 1,500 cubic feet permitted by the Supreme Court decision for the navigation of the Chicago River, as a result of improved methods of sanitation or sewage disposal, upon application of any interested party could be cut in two, could be cut to 500 or even 250 feet possibly? In other words, is it not an unstable, unfixed, indefinite amount that is stated?

Mr. VANDENBERG. I think the Senator from Illinois may state a correct proposition of law * * *.

* * * * *

Mr. GLENN. The Supreme Court has said that if there is an improvement in plans for sewage disposal, then the Lake States, Michigan or Ohio, or anybody interested, can come in, and the flow, upon a proper showing, can be cut down.

Mr. VANDENBERG. That is true, as I understand it, although I hesitate to pass upon the legal phase.

Mr. GLENN. If that is true, under the Blaine amendment no one knows how much water will be available for the Chicago waterway canal. We may have the 1,500 feet, we may have 1,000 feet, we may have 500 feet, we may have even

less. It is an unstable, indefinite, unfixed amount upon which nobody can depend. * * *

* * * * *

Mr. VANDENBERG. * * * I think the Senator from Illinois is entirely justified in the point he makes that an appeal to the court can work both ways.

Mr. GLENN. Or either way.

Mr. VANDENBERG. I will not deny that for a moment, but I do deny that there is in that situation any such hazard as he describes. [72 Cong. Rec. 11000.]

Senator Blaine then took over the defense of the amendment. He did not deny that it provided for an amount of water that would vary with future changes in the decree, but contented himself with explaining his reasons for believing that the Court would not reduce the amount of water already provided for. His view seems to have been based on a belief that the Court, by finding a diversion of 1,500 c.f.s. to be needed for navigation in the Chicago River, had put that amount beyond its power to reduce.

Mr. BLAINE. If the Senator will permit the suggestion, in my opinion the position of the Senator from Illinois is wholly in error *if I read the decision of the Supreme Court correctly* * * *. [72 Cong. Rec. 11000; emphasis added.]

A little later, Senator Glenn returned to his question:

* * * Is there really any guaranty to the commerce of the United States that we shall have any specific amount of water under this decree

of the Supreme Court, which is expressly kept open for possible modification?

Mr. BLAINE. Mr. President, I am very happy to answer the Senator's question.

In the first place, the Senator has a far-fetched supposition. I do not believe that the full purport and meaning and intention of the Supreme Court decree is fully understood. It is true that the court has provided that either party to the suit may petition at the foot of the judgment for a modification of the decree. That is true; but for whose protection is such a provision made in the decree? For the protection of the city of Chicago.

* * * * *

I have pointed out that the Supreme Court, in order to find a legal basis to permit 1,500 cubic feet per second, necessarily made reference to the fact that 1,500 cubic-feet seconds were useful for navigation in the port of Chicago. The Supreme Court directly declared that it would not consider the question of diversion from the standpoint of navigation; that Congress had not acted, and therefore the Supreme Court would not intervene in that matter. In other words, if 1,500 cubic feet in the port of Chicago is for navigation, the Supreme Court has no equitable jurisdiction over that. The case is one in equity.

* * * * *

If it is found that less than 1,500 cubic feet are necessary for sewage disposal, I appreciate that the Supreme Court can modify its decision accordingly. But if the showing is made that, notwithstanding the fact that less than 1,500 cubic feet are needed for sewage disposal, not-

> withstanding the fact that a showing may be made that a thousand cubic feet per second may be all that is necessary for sewage disposal, the water in the Chicago River which affects the port of Chicago for navigation purposes is 1,500 cubic feet per second. [72 Cong. Rec. 11005–11006.]

Senator Deneen of Illinois clearly expressed the view that the amendment did not adopt as fixed amounts the amounts stated in the decree as originally entered. He said:

> The decree incorporated in the Blaine amendment does not furnish a definite amount of water. It is elastic. * * * The decree provides, however, that either party, on the filing of the semiannual report, may come in and open up again the question of diversion.
>
> If, for instance, the sanitary district should be able, by the plants constructed at the cost of $176,000,000, and acting in good faith, to dispose of only 50 per cent of the sewage, the sanitary district would have the right to come into court to ask for a larger diversion; but if, in the progress of the art, the sanitary district, under the supervision of the court and the supervision of the complainants, should be able to dispose of 100 per cent of the sewage, then the court would enter a decree forbidding it to divert 1 cubic foot of water from the lake. Then what would become of your navigation? You would have a waterway without adequate water. You are trying by this amendment to place an indefinite, uncertain provision of a decree relating to sanitation into a law relating to navigation of a great waterway which con-

> nects the channels of the Mississippi system with those of the Great Lakes and the St. Lawrence systems. The decree can not be made definite, but may be altered every six months. [72 Cong. Rec. 11183.]

Senator Deneen repeated that view later (72 Cong. Rec. 11185). When the amended bill was returned to the House, Congressman Chindblom said, "in the Senate amendment, the flow of water for navigation purposes is fixed and limited by the decree of the court as to the amount of water that may hereafter be diverted for sanitation purposes alone through the Chicago Sanitary District Canal * * * ." 72 Cong. Rec. 11599.

Nowhere in the legislative history have we found any suggestion that these views were incorrect, and that the Act would adopt the original decree rather than the decree as it might be amended. We conclude that the Act in no wise prevents the Court from modifying its decree.

II. THE COMPLAINANTS HAVE NOT SHOWN GROUNDS FOR APPOINTMENT OF A SPECIAL MASTER TO INQUIRE INTO THEIR ALLEGATIONS

As we have indicated, the complainants have not shown any changes in circumstances since entry of the 1930 decree of sufficient magnitude to justify reopening and modifying the decree, under the rules applicable to such proceedings. That being so, no purpose could be served by appointing a Special Master to inquire into their allegations. And since it does not appear that the complainants are in any way injured by deficiencies, if any, in the operations

of the Sanitary District, there appears to be an equal lack of reason for considering the appointment of a Permanent Master to supervise those operations.

III. THE UNITED STATES SUGGESTS APPOINTMENT OF A SPECIAL MASTER TO RE-EVALUATE THE NEEDS OF ALL PARTIES AND MAKE RECOMMENDATIONS AS TO THE FUTURE PATTERN OF DEVELOPMENT OF THE SITUATION, LOOKING TOWARD ENTRY IF NECESSARY OF A SUPPLEMENTAL DECREE

For the reasons stated, we believe that the complainants have failed to sustain their burden of making sufficient allegations, and that the relief which they seek should be denied at this time. We are nevertheless extremely reluctant to see this case disposed of simply on that legal basis. We have here serious and important conflicts in the interests of communities forming a large segment of the United States, affecting their whole economies and indeed their very lives. At issue is the destiny of the Great Lakes, one of the Nation's greatest natural resources. Ordinary prudence seems to us to dictate that the problem be approached, so far as possible, on a broader basis than the mere requirements of equity procedure. We fully realize that this was done in 1930 and that, as we have just pointed out, no substantial change in circumstances has supervened; and that the equity rule that a decree in such case shall not be re-examined is a good and necessary rule. Our concern, however, is not with the present operation of the decree but rather with the course that should be taken regarding future developments. In a situation like this, changes come not suddenly but little

by little—conditions develop much as a coral reef develops, and are fully as difficult to alter afterward. For example, since 1930 the Sanitary District has developed its sewage disposal system on the basis of discharging into the canal (justifiably, we believe, under the decree), and it now reasonably urges the magnitude of that development as an argument against being required to change it. If allowed to do so, it will continue in the same direction, and by the time changes have become so major as to warrant re-opening the decree, their mere size will hinder any remedial action. Perhaps no alternative exists; but we feel that if events are to move in that direction it should be the result of an informed choice and not of mere inertia. Accordingly, we suggest that the Court appoint a Special Master to review the whole situation, not to change the present decree as applied to the present facts, but to recommend whether a supplemental decree be needed, and if so, what it should be, with respect to future changes as they may come.

We think this is important not only for the practical engineering benefits that may flow from it, but also for the good it may do in eliminating what has been a long-standing source of ill-will among the States involved. We believe that until a thorough and impartial inquiry is conducted and a definite conclusion established, this unresolved dispute will continue to grow and rankle among the States of the Great Lakes Basin, like a festering sore on the body politic, poisoning the development of that entire area. A careful inquiry leading to a settled plan

for future developments, if it would not content all the parties, should at least satisfy them that their problems and grievances have been duly considered and an answer settled upon, permitting them to turn their attention to other matters in a more harmonious atmosphere.

We do not mean to suggest that we can offer any efficient solution to all the problems involved. They are infinitely complex, and may even appear almost insoluble. There is no doubt that, as time passes, Chicago will need more water. So will nearby communities, whose supplies of ground water are running out—for example, the Elmhurst-Villa Park-Lombard district involved in No. 15, Original, now before the Court.[14] Certainly the needs of these communities must be met in some way, and some means must be found for disposing of their sewage effluent, which will increase correspondingly with their water use. Even the present amount of sewage and effluent discharged into the canal requires substantial dilution with water directly diverted from the lake, to prevent excessive pollution. For years, Illinois has been urging that a much larger diversion is already required (*supra*, pp. 11–12), and it seems inevitable that any substantial increase in the sewage and effluent discharged would call for still more diversion. There is a very real limit to the capacity of the canal to handle such an increased flow without the creation of a current so strong as to interfere with navigation; and quite apart from that consideration, such a twofold

[14] *Illinois* v. *Michigan, Ohio, Pennsylvania, Minnesota, New York and Wisconsin.*

increase in the draft on Lake Michigan would eventually reduce lake levels, particularly during low-water cycles, to an extent that would interfere excessively with navigation and with other interests of cities and landowners situated on the lakes. Not only would American interests be affected, but serious complications with Canada can be foreseen. While such developments, of any serious magnitude, are still some distance in the future, it seems prudent to consider and prepare for them, so far as possible, before they become imminent.

The solution urged by the complainants, of returning the Sanitary District's effluent to the lake, offers difficulties at Chicago that do not face other lake cities. Chicago's population is far larger than that of any other city on the Great Lakes.[15] At Chicago, Lake Michigan is relatively shallow; to reach a depth of 300 feet one must go out 20 or 30 miles at Chicago, as compared with less than 10 miles, for example, at Milwaukee. In the southern end of Lake Michigan, too, the currents are slight and variable, depending chiefly on the effect of surface winds; in the long run, there tends to be a counter-clockwise circulation in the whole southern end of the lake.[16] These factors would make it extremely difficult to assure that sewage effluent discharged into the lake would be adequately dis-

[15] At the 1950 census, Chicago had a population of 3,620,962, as compared with 1,849,568 for Detroit, 914,808 for Cleveland, 637,392 for Milwaukee, 580,132 for Buffalo, 332,488 for Rochester, 130,803 for Erie and 104,511 for Duluth. *World Almanac* (1959), 274–287. In 1956 Toronto had a population of 667,706 and Hamilton had 239,625. *Ibid.*, 326.

[16] See Hough, *Geology of the Great Lakes* (1958) 9, 35–43.

persed and diluted, and that it would not sometimes drift back to the city's water intakes. Cost, too, is a matter to be considered in weighing the desirability of various solutions to the problem On December 29, 1958, a prominent engineering firm gave the Sanitary District an estimate that the cost of constructing facilities for discharging its effluent into Lake Michigan would probably exceed $300,000,000. Of course the District should not be allowed to infringe the rights of others in the Great Lakes, merely to avoid proper expenses of its own operations; at the same time, an expenditure of that magnitude should not be imposed on it without a substantial showing that it is necessary and will be efficacious.

It may be that some intermediate solution can be achieved, such as discharging part of the effluent into Lake Michigan, so that the total diversion can be held at the present level despite future increases in the domestic pumpage; or perhaps intensive study of sewage treatment could lead to methods that would diminish the need for direct diversion, offsetting increases in the pumpage. Along another line, it is possible that lake levels could be restored by compensating or regulating works at the lake outlets. See S. Doc. No. 28, 85th Cong., 1st Sess., 26–27. We suggest these only as illustrative of what we might hope for from a thorough study of the whole situation. The commentary on the briefs and pleadings now before the Court, furnished to the Solicitor General by the Department of Health, Education, and Welfare, attached hereto as Appendix B (*infra*, pp. 45–55), shows that at almost every point the Public

Health Service feels that further study is needed before any conclusion can be reached on the ultimate problems of water supply and sewage disposal that are involved. We believe that appointment of a Special Master to supervise such studies and to correlate the results affords the most satisfactory method for dealing with this situation.[17]

It seems to us essential that the making of such a study be under the direction of this Court. The problem is basically that of apportioning the water of an interstate body of water. As the Court explained in *Kansas* v. *Colorado,* 206 U.S. 46, in the absence of interstate agreement (and such agreement is here conspicuously absent), this Court may be the only body competent to make such apportionment. Lake Michigan is of course a navigable body of water, and so is subject to congressional control in a way that the Arkansas River in *Kansas* v. *Colorado* was not; nevertheless, it has not been decided that apportionment of its water among the riparian States is within the competence of Congress under the commerce power.

> * * * It does not follow, however, that because Congress cannot determine the rule which shall control between the two States or because neither State can enforce its own policy upon the other, that the controversy ceases to be one of a justiciable nature, or that there is no power which can take cognizance of the con-

[17] Recently, the Solicitor General urged the parties to explore the possibility of solving their problems through cooperative studies and negotiation; but the present indications are that this approach is not likely to be fruitful.

> troversy and determine the relative rights of the two States. Indeed, the disagreement, coupled with its effect upon a stream passing through the two States, makes a matter for investigation and determination by this court. [*Kansas* v. *Colorado,* 206 U.S. 46, 95–96.]
>
> * * * As Congress cannot make compacts between the States, as it cannot, in respect to certain matters, by legislation compel their separate action, disputes between them must be settled either by force or else by appeal to tribunals empowered to determine the right and wrong thereof. Force under our system of Government is eliminated. The clear language of the Constitution vests in this court the power to settle those disputes. [*Id.* at 97.]
>
> * * * [W]henever, as in the case of *Missouri* v. *Illinois,* 180 U.S. 208, the action of one State reaches through the agency of natural laws into the territory of another State, the question of the extent and the limitations of the rights of the two States becomes a matter of justiciable dispute between them, and this court is called upon to settle that dispute in such a way as will recognize the equal rights of both and at the same time establish justice between them. In other words, through these successive disputes and decisions this court is practically building up what may not improperly be called interstate common law. [*Id.* at 98.]

Cf. *Hinderlider* v. *La Plata Co.,* 304 U.S. 92, 104–105.

Notwithstanding that the complainants have failed to make out a case for the particular relief which they now seek, we think it clear that there is a justiciable controversy before the Court so long as

the Court continues, by its injunction, to control the defendants' conduct for the benefit of the complainants. There can be no doubt that the Court has continuing jurisdiction over the injunction which it entered in 1930. *United States* v. *Swift & Co.*, 286 U.S. 106, 114. We conceive that this jurisdiction is not confined to enforcing the present terms of the injunction or modifying it to meet new conditions actually experienced or imminently anticipated. We believe that the equity power of the Court necessarily includes the power to exercise reasonable foresight in planning for the future, particularly where, as here, large public interests may suffer serious injury otherwise. We suggest that after the lapse of nearly thirty years it is wholly appropriate for the Court to appoint a Special Master to re-evaluate the demands and potentialities of the situation, so far as concerns developments reasonably to be expected in the future as well as improvements that might help the present situation.

While we have not attempted to map out a procedure for such a Special Master, it is suggested that his primary function would not be to hold hearings and receive evidence. Rather, he should be instructed to conduct his own investigation using the facilities of the Department of the Army and the Public Health Service insofar as they can be made available to him. From our own experience with the parties it can be anticipated that both sides would cooperate fully in providing him with information. The Court could, of course, empower him to subpoena records and call for evidence where necessary. His report to the Court could serve as a focal point for agree-

ment among the parties, or at least would narrow the issues by providing specific findings and proposals to which the parties could address themselves. We believe that a precedent for this sort of independent investigation by a Special Master is found (though obviously on a smaller scale) in *United States* v. *California,* 334 U.S. 855, 856, where the Court ordered appointment of a Special Master "to make inquiry into this subject and to hold hearings, *if he finds it necessary,* in order to make recommendations to this Court" (emphasis added). Plainly the Court contemplated primarily an independent inquiry by the Special Master. We believe that the nature of the present problem would make that the most effective procedure here, likewise.

CONCLUSION

For the foregoing reasons, the United States believes that the Court should not now amend the 1930 decree so as to require the discharge of the Sanitary District's sewage effluent into Lake Michigan, but that the Court should appoint a Special Master to supervise the making of studies of all the problems involved and to report to the Court what course should be followed in this situation in planning to meet the necessary requirements of the area affected.

Respectfully submitted.

J. LEE RANKIN,
Solicitor General.

JOHN F. DAVIS,
Assistant to the Solicitor General.

GEORGE S. SWARTH,
Attorney.

APRIL 1959.

APPENDIX A

Letter of February 27, 1959, from the Secretary of the Army to the Solicitor General, transmitting comments of the Chief of Engineers on matters of navigation and engineering contained in the complainants' Amended Application

DEPARTMENT OF THE ARMY

WASHINGTON 25, D.C., *February 27, 1959.*

Honorable J. LEE RANKIN,
Solicitor General of the United States,
Department of Justice, Washington, D.C.

DEAR MR. RANKIN: In your letter of 14 January to Major General Emerson C. Itschner, Chief of Engineers, you request his views as to the facts stated in the documents filed with the Supreme Court concerning Lake Michigan diversions at Chicago. The amended application now pending in the Supreme Court would require the State of Illinois and the Metropolitan Sanitary District of Greater Chicago to return the effluent from "domestic pumpage" to Lake Michigan.

Attached is an analysis prepared by Major General Itschner of the amended application.

Sincerely yours,

Wilber M. Brucker,
WILBER M. BRUCKER,
Secretary of the Army.

1 Incl. Analysis (in dup).

12 FEBRUARY 1959.

ANALYSIS OF AMENDED APPLICATION BY THE STATES OF WISCONSIN, MINNESOTA, OHIO, PENNSYLVANIA, MICHIGAN AND NEW YORK TO THE U.S. SUPREME COURT FOR REOPENING AND AMENDMENT OF THE DECREE OF APRIL 21, 1930 RE LAKE MICHIGAN DIVERSIONS AT CHICAGO

The following analysis of the Amended Application to the U.S. Supreme Court has been prepared in response to request from the Solicitor General, Department of Justice, as contained in his letter of 14 January. The amended application is in further support of the original application in which it was requested that the State of Illinois and the Metropolitan Sanitary District of Greater Chicago be required to return the effluent from "domestic pumpage" to Lake Michigan. The original application was denied by court order entered on 3 March 1958.

It is stated in the first paragraph on page 12 of the amended application:

> It decreases the carrying capacity of the large lake vessels by from 180 to 200 tons per cargo. It takes away annually more than 2,500,000 tons of carrying capacity of the Great Lakes vessels at a loss of more than $4,000,000 in annual revenues.

The estimate of decrease in carrying capacity of large lake vessels of 180 to 200 tons per cargo for a decrease in draft of 1.8 inches is considered to be of the proper magnitude.

The estimate of annual tonnage loss of 2,500,000 tons with a value of $4,000,000 appears to be based on an assumption of full utilization of the United States and Canadian Great Lakes fleet with lake levels so low that all vessels would be affected. We do not have sufficient information on the composition of the

Canadian fleet to estimate the reduction in its capacity. In paragraph 172 of Senate Document 28, 85th Congress, the Corps of Engineers estimated that the reduction in capacity for the United States Great Lakes fleet under similar assumptions for a permanent increase in diversion of 1,000 cubic feet per second would be 1,000,000 tons. This reduction of capacity for a diversion of 1,800 cubic feet per second would be 1,800,000 tons on the same basis. However, as a practical matter, the assumed conditions on which the above estimates are based could never occur since some of the smaller, lighter draft vessels in the fleet would not be restricted in their loading because of limited channel depths even during periods of low lake stages.

The average annual loss to the United States Great Lakes fleet as determined in Senate Document 28 for a permanent increase in diversion of 1,000 cubic feet per second, was 300,000 tons (page 47). The results of that study are still considered to be valid based on data available at that time, but are subject to some adjustment due to more up-to-date information.

It is considered that the most reasonable estimate of average annual losses to the United States Great Lakes fleet, resulting from a lowering of lake levels due to an increase in diversions, should be based on the criteria used in the study in Senate Document 28. These criteria are as follows:

a. The anticipated United States Great Lakes Commerce and fleet as of 1985.

b. The present general pattern of traffic on the Great Lakes.

c. Waterway improvements to the connecting channels and harbors which can be expected to be accomplished.

d. The natural variation in levels of the Great Lakes.

The current analysis has been based on the fluctuation of lake levels as occurred for the 35–year period 1922–1956 in accordance with the criteria listed above. With use of data comparable to that available for the Senate Document 28 studies, it is estimated that with a permanent increase in diversion of 1,800 cubic feet per second the average annual loss would be 540,000 tons. Recent studies of future traffic in iron ore and stone indicate that estimates used in Senate Document 28 should be revised upward about 10 percent. More recent estimates are not available for prospective traffic in other commodities. It is considered appropriate to increase the estimated average annual loss in Senate Document 28 by 10 percent, from 300,000 tons to 330,000 tons, and to also increase by 10 percent the estimate of annual losses for a diversion of 1,800 cubic feet per second from 540,000 tons to 594,000 tons, say in round numbers 600,000 tons.

The value of $0.80 per ton as used in Senate Document 28 has been reviewed in the light of more recent information on cost of transportation as developed in connection with the Great Lakes harbor studies. In these studies, the actual cost per ton varied from $0.34 per ton for short haul coal trips to $1.80 per ton for grain from Duluth to Buffalo. The estimated composite or weighted average cost is considered to be $1.10 per ton. Accordingly, the average annual loss due to a permanent diversion of 1,800 cubic feet per second is estimated to have a value of $660,000.

In the second paragraph on page 12 of the amended application it is stated that the port development expenditures for the Great Lakes ports for the 12-year period 1946–1957 were approximately $147 million. The expenditures made by the Corps of Engineers during the indicated period for construction and maintenance of harbor channels and port facilities

throughout the Great Lakes area total about $87 million. Presumably the estimate in the amended application includes all expenditures by both Federal and non-Federal interests.

On page 15 of the amended application a table is given showing loss of energy, capacity, and revenue to the New York State Power Authority at its Niagara and St. Lawrence plants resulting from permanent diversion of 1,800 cubic feet per second from Lake Michigan at Chicago. The estimates are based on an equal loss of flow to Canada and the U.S. from the diversion, that is, a loss of 900 cubic feet per second at the Power Authority's plants. The estimates also appear to be obtained by the same procedure as that shown by the Power Authority as given on page 255 of the printed hearings held on 28–29 July 1958 by the Senate Public Works Committee on HR 2 and S 1123, 85th Congress.

Detailed computations to verify the energy and capacity amounts as shown are not available for analysis. Based on comparative studies the energy values as computed appear to be the additional amount of energy that could be generated if the permanent diversion at Chicago is returned to the lake-drainage system. Substantially all of the additional energy could be generated without additional investment in power generating facilities. The monetary value of the energy presented in the amended application is considered a reasonable estimate.

Estimates of gain in capacity from the reverted waters could be determined only from a detailed analysis of many variable and complex factors. Marketing arrangements and load characteristics, now and in the future, would play an important part in determining the actual saleable capacity for various

flow conditions. Accordingly, it is not possible for us to fully confirm the estimates of the capacity values.

A representative of the staff of the Federal Power Commission has been consulted in connection with the power items. He concurs in general, with the views expressed in the preceding paragraphs.

In Section XIII, page 16, of the amended application it is stated that a diversion of 1,500 cubic feet per second is adequate to maintain navigation in the Port of Chicago and the Illinois Waterway. The flow of 1,500 cubic feet per second is the authorized diversion exclusive of domestic pumpage. This rate of flow, without domestic pumpage, is adequate for operation of existing navigation facilities on the Illinois Waterway.

A survey report was transmitted to Congress on 3 September 1958 in which the authorization of duplicate navigation locks on the Illinois Waterway is recommended. This report will be published as House Document No. 31, 86th Congress, 1st Session. Studies of water requirements for operation of the recommended duplicate locks show that an average annual flow of 1,826 cubic feet per second would be required, representing an increase of 326 cubic feet per second over the amount of the presently authorized diversion.

APPENDIX B

Letter of March 10, 1959, from the Surgeon General to the Solicitor General, transmitting comments of the Public Health Service on matters of public health contained in the complainants' Amended Application and in the briefs in support thereof and in opposition thereto

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

WASHINGTON 25, D.C., *March 10, 1959.*

Re: *Wisconsin, et al.* v. *Illinois, et al.*, Sup. Ct., Original Cases Nos. 2, 3, and 4

Hon. J. LEE RANKIN,
Solicitor General,
Department of Justice, Washington 25, D.C.

DEAR MR. RANKIN: This is in response to your letter of February 17, 1959, requesting an expression of views with respect to the accuracy of facts in the copies of the briefs filed in the Supreme Court concerning diversion of water from the Great Lakes, which you forwarded to us.

We are enclosing copies of staff comments on the briefs. These comments are confined to public health and engineering problems and factual statements contained in the briefs. As these comments will indicate, the views of the Public Health Service with respect to the effectiveness of Chicago's present disposal methods, the effects of a reduction in the amount of water diverted, and, the possibility and desirability of returning effluents to Lake Michigan, can only be formed after an extensive study of the problem.

If we can be of any further assistance to you please do not hesitate to call on us.

Sincerely yours,

(S) L. E. BURNEY,
Surgeon General.

Enclosures.

PUBLIC HEALTH SERVICE COMMENTS ON AMENDED APPLICATION OF THE STATES OF WISCONSIN, MINNESOTA, OHIO, PENNSYLVANIA, MICHIGAN, AND NEW YORK FOR A REOPENING AND AMENDMENT OF THE DECREE OF APRIL 21, 1930 AND THE GRANTING OF FURTHER RELIEF

Page 5–II C

The projected population estimate for the area served by the District is given as 15 to 20 million within the next twenty years. Based on past records, this estimate appears high, but a more accurate forecast will require further detailed study. A reliable estimate of population growth is necessary to determine future waste treatment and water supply needs of the area.

Page 6–III D

It is reasonable to expect that sewage and industrial wastes from the service area of the District will increase with increasing population and industrial and commercial activity. Furthermore, if present disposal practices are continued, the pollution in the Canal will continue.

Page 7–IV

The table on page 7 indicates that the efficiency of the sewage treatment plants of the Sanitary District dropped from 93.6% in 1952 to 85.6% in 1957. On pages 15 and 16 of the brief of the defendants it is stated that the reason for this decline in efficiency was due to construction changes being made in the plant and that these construction changes are now

completed. While this explanation may be a reasonable one, in the absence of an analysis of operating records, we cannot determine whether the cause of the decline in operating efficiency was entirely due to changes in construction, or whether less than optimum operating practices may have contributed to such decline in efficiency. A drop in efficiency from 93.6% to 85.6% will approximately double the waste load on the receiving watercourse.

Page 8–V

The statements that diversion from Lake Michigan for domestic pumpage will double in 17 years seems to be based on a claim made by the Chicago Sanitary District. Since 1930 the increase in domestic pumpage has been very slight. This indicates need for a detailed analysis before a reliable prediction can be made concerning future domestic pumpage by Chicago.

The last paragraph states that the amount of water withdrawn as domestic pumpage by the Sanitary District is excessive. An analysis of water supply statistics indicates that consumption by cities of over 100,000 population in 1954 was 150 gals. per capita per day. Comparable statistics on large cities in 1956 are indicated as follows:

New York City---	125 gals. per capita per day.
Milwaukee -------	172 gals. per capita per day.
Los Angeles------	180 gals. per capita per day.
Cleveland --------	213 gals. per capita per day.
Chicago ---------	231 gals. per capita per day.

It would be necessary to study and evaluate domestic, commercial, and industrial water uses to ascertain, when, or if, such usage is excessive.

Page 9–VII

We cannot substantiate statements made in this section until an analysis is made of the waste treat-

ment and disposal practices in the Sanitary District, and an accurate prediction is made concerning future requirements. Dilution will not solve the problem of floating solids and settleable materials.

Page 10–VIII

The comments offered on Section VII above are applicable to the question of whether it will be necessary to have diversion for the disposal of sewage from the Chicago area.

It is stated that diversion is not necessary for the purpose of disposing of sewage of the Chicago Area nor is it necessary for the protection of the public water supply of the Chicago Area and the health of the people of the Chicago Area. It is further stated that other Great Lakes communities take their water supply from the Great Lakes and return such water after use to the lake from which it was obtained without any injury to the people using such water and without causing any nuisance conditions in the lake, and concludes "This is in conformity with the Standards set by the U.S. Department of Health".

The question of whether treated wastes should be discharged into the Great Lakes must be considered on an individual basis. Any study must include extensive and detailed investigations of sewage and industrial wastes, methods of collecting wastes, waste treatment operations, as well as a comprehensive evaluation of lake currents and lake dispersion characteristics. Chicago has complained periodically about taste and odor problems in their water supply allegedly caused by municipal sewage and industrial waste discharges from lake cities in nearby Indiana. Further, Cleveland beaches have been closed at times because shifting wind-induced currents have created nuisance conditions.

While the Public Health Service has established drinking water standards it has no comparable waste treatment or disposal standards.

Page 10–XX

Much of the above discussion pertains also to this section.

Page 16–XIV

It is stated that it is possible and feasible to return the effluent from the Sanitary District treatment plants to Lake Michigan without endangering the domestic water supply taken from the Lake by the City of Chicago and other municipalities because of the many advances and developments which have taken place since 1930 in the science and technology of the treatment and purification of sewage and industrial wastes. It is further alleged that all of the municipalities along the Great Lakes are receiving their domestic water supply therefrom, and after treatment, return their domestic pumpage to the waters of the lake from which it is taken (with the exception of the Chicago Area) without experiencing any danger or hazard to domestic water supply or to public health.

There is little doubt that the original decisions regarding the discharge of the District sewage to the Illinois Waterway was based on available knowledge of waste treatment and disposal practices at the time of the decision. Considerable progress in the art and science of sewage and industrial waste treatment and in water purification has taken place since that time. It may be possible that treated wastes could be returned to the lake in such condition and location as not to seriously inhibit use of lake water for public water supply purposes. However, before this is considered as a feasible alternative, the characteristics

of the District's treated wastes should be studied and the ability of Lake Michigan to absorb and disperse these wastes should be investigated. All this must be accomplished before relative location of waste outfalls and water intakes can be selected. In addition, there are certain nutrient substances present in the treated sewage that may induce excessive biological growths in the lake. Such growths have been known to cause shore line nuisances, and taste and odor problems, increased operating difficulties, and additional expenses in water purification.

PUBLIC HEALTH SERVICE COMMENTS ON BRIEF IN SUPPORT OF AMENDED APPLICATION OF THE STATES OF WISCONSIN, MINNESOTA, OHIO, PENNSYLVANIA, MICHIGAN AND NEW YORK FOR A REOPENING AND AMENDMENT OF THE DECREE OF APRIL 21, 1930 AND FOR THE GRANTING OF FURTHER RELIEF

Page 3, Introduction

It is stated that a good beginning in solving problems of water shortage in the Great Lakes area would be to order the Chicago Sanitary District to return the Chicago domestic pumpage to the Great Lakes from which such domestic pumpage is taken. It would not be advisable at the moment to initiate such action until adequate study would be made of the various factors involved in such a program. This has been covered in detail in previous comments on the Amended Application.

Page 8, II

The brief cites the Special Master as saying in 1941 "The facts proven did not establish any menace to the health of the people of Lockport and Joliet, or elsewhere along the waterway requiring an increase in diversion in water from Lake Michigan." We believe that contamination by pathogenic organ-

isms of the Illinois Waterway is inevitable and constitutes a continuing potential health hazard. In our opinion the statement of the Special Master recognized that the answer to pollution by pathogenic organisms of the waterway would not be forthcoming by increased dilution. Additional dilution would have a slightly reduced contamination effect on water quality.

Page 11–III

It is indicated that the Sanitary District has not filed any reports with the Court since 1939 and there is no way of knowing exactly the efficiency of the operations of the treatment plants of the Sanitary District. We have no reports on which to base an opinion on efficiency.

Page 13–III

The brief states that discharge of a sewage effluent into the Illinois Waterway, even after dilution, cannot be an effective method of waste disposal. We believe that adequate collection and treatment of all the wastes emanating from the Greater Chicago Area would improve conditions of the Illinois Waterway. Lack of data precludes agreement on this point.

Page 14–III

It is stated that the District has failed to provide and construct adequate sewage and industrial waste collection and treatment facilities to match the growth of the region. Sufficient data is not available to evaluate this matter.

Page 15

The statement is made that the Sanitary District still persists in using obsolete techniques of sewage disposal by discharging the wastes, some treated, others untreated, into the Chicago Drainage Canal where it is diluted with Lake Michigan water and adds the "mess" is flushed on down the waterway into

the Mississippi Basin. It further states that the Sanitary District has treatment plants which are capable of much better performance than shown by the results of the past years.

The District apparently collects its wastes and uses the activated sludge method to treat them. There may, however, be certain amounts of untreated wastes that reach the waterway. Reliable evaluation of these factors will require considerable study, including field investigations. The reference to the "mess" being flushed to the Mississippi Basin may be misleading. The Illinois Waterway is itself a part of the Mississippi Basin. While certain constituents of Chicago sewage and industrial wastes will ultimately reach the Mississippi River, these wastes do not constitute a major pollutional factor at that point.

Page 23–VI–A

It is stated that the District abstracts water from Lake Michigan, and after filtration and treatment, distributes it for residential and commercial use.

It must be pointed out that Chicago at the present time does not filter all of the Lake water that it uses for domestic, commercial and industrial purposes. In Illinois from below Waukegan, the Central and Northern Water Districts of Chicago serve three million people about 650 mgd of unfiltered but disinfected water. However, a new water treatment plant will be in operation by 1962, to serve this area. All other domestic pumpage is treated by filtration and auxiliary processes at the Southside Filtration Plant.

Pages 24–25

It is stated by the plaintiff that every municipality situated in the Great Lakes Basin returns its domestic pumpage to the waters of the lake from which it is

taken after waste treatment and chlorination, and that Chicago should be compelled to do likewise. It is noted further that the cities of Milwaukee, Cleveland, and Toronto are able to return their treated effluents to the Lake without being exposed to dangers of contamination.

It should be pointed out that Chicago is located in such a position along the Lake that normal currents and wind action might or might not permit adequate dispersion and disposal of its treated wastes so as not to contaminate its raw water intake. This further points out the need for extensive study relative to the location of any outfalls in relation to lake currents, upwellings, and wind action.

Page 27

In evaluating the statements made on pages 26 and 27, we believe the following should be borne in mind: In the light of modern experience it has been demonstrated that highly treated wastes from a large community may at times cause pollution problems when discharged to any body of water. Other problems that may be involved include contamination by pathogenic organisms, taste and odors resulting from industrial wastes and secondary growths of aquatic plants, and the necessity for increased use of chemicals, and other water purification difficulties. These problems may result even though an extremely high degree of treatment is achieved and the effluent is clear and odorless. While it may be possible to maintain fish in the plant effluent because the process provides dissolved oxygen in the effluent, decomposition of the residual constituents, which take place after a lag in time, may in certain common circumstances inhibit or kill the fish.

PUBLIC HEALTH SERVICE COMMENTS ON BRIEF IN OPPOSITION TO THE AMENDED APPLICATION OF THE COMPLAINANTS FOR A REOPENING AND AMENDMENT OF THE DECREE OF APRIL 21, 1930, AND FOR FURTHER RELIEF

Page 6

A Table is presented showing annual average pumpage and diversion from Lake Michigan. It is extremely significant to observe that flows designated as domestic pumpage have not increased appreciably over the given 28-year period; and, that this is only one index of future domestic pumpage that should be applied to produce a reliable estimate in the light of growth changes that may result from the opening of the St. Lawrence Seaway.

Page 14

In general combined sewer systems do not permit, in their basic concept and design, treatment of all wastes in time of storm because of overflow. There are insufficient data available at the present time to evaluate fully the effects of the storm water discharges. There is evidence that storm water mixed with sewage contributes a pollution load to the waterway, particularly in the upper portion of the waterway. Major lake cities make partial use of the combined system.

Pages 14–15

The brief states that BOD removal for the District's disposal plants was 93.6% in 1952, 85.6% in 1957, and averaged 90.7% for the first nine months of 1958. These values may reasonably be expected with the type of treatment provided. Other wastes may reach the waterway, such as storm water overflow, untreated sewage, partially treated or untreated industrial wastes, and effluent from the sludge lagoons at Lawndale which exert effects upon water quality.

Page 30

The following statement is made, "Regardless of the amount spent by the defendants, the risk of polluting Chicago's water supply would be ever-present. (See 1950 and 1951 reports of International Joint Commission.)"

Sewage and industrial wastes discharged into water serving as the source of water supply presents to some degree an ever-present risk of polluting the water supply. This same situation occurs in a great number of instances where municipal water supplies are withdrawn from streams receiving upstream pollution, and does not present an unusual situation. There is risk involved but the risk can be minimized by adequate waste treatment and proper discharge of the wastes.

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